

**IN THE CLAIMS:**

1    1. (CANCELLED)

2    2. (CURRENTLY AMENDED) In an intermediate node of a data network, the data  
3    network having one or more virtual local area networks (VLANs), the intermediate node  
4    containing a forwarding database having one or more forwarding database entries, and a  
method for controlling flooding of packets on a VLAN comprising the steps of:

5            referencing a media access control (MAC) limit database comprising one or more  
6    MAC limit database entries wherein each entry is associated with a VLAN and contains a  
7    MAC limit that indicates a number of forwarding database entries which are allowed to  
8    may be associated with the VLAN, and a MAC count that indicates a number of forward-  
9    ing database entries associated with the VLAN;

10            using the MAC limit database to determine if a MAC count associated with the  
11    VLAN matches the MAC limit associated with the VLAN; and  
12            if so, performing an action for controlling the flooding of packets on the VLAN.

13            3. (PREVIOUSLY PRESENTED) The method of claim 2, the step of using the MAC  
2    limit database further comprising:

3            locating a MAC limit database entry associated with the VLAN; and  
4            comparing the MAC count of the MAC limit database entry with the MAC limit  
5    of the MAC limit database entry to determine if the number of forwarding database en-  
6    tries associated with the VLAN matches the limit established for the VLAN.

1    4. (PREVIOUSLY PRESENTED) The method of claim 2, the step of using the MAC  
2    limit database further comprising:  
3            locating a MAC limit database entry associated with the VLAN;

4 comparing the MAC count of the MAC limit database entry with the MAC limit  
5 of the MAC limit database entry to determine if the MAC count matches the MAC limit;  
6 and  
7 if not, updating the MAC count.

1 5. (CURRENTLY AMENDED) The method of claim-4-2, the step of performing an ac-  
2 tion further comprising:  
3 logging a message to a log accessible to the intermediate node.

1 6. (CURRENTLY AMENDED) The method of claim-4-2, the step of performing an ac-  
2 tion further comprising:  
3 disabling flooding for the VLAN.

1 7. (CURRENTLY AMENDED) The method of claim-4-2, the step of performing an ac-  
2 tion further comprising:  
3 disabling forwarding packets for the VLAN.

1 8. (CURRENTLY AMENDED) The method of claim-4-2, the step of performing an ac-  
2 tion further comprising:  
3 disabling learning for the VLAN.

1 9. (CURRENTLY AMENDED) In an intermediate node of a data network, the data net-  
2 work having one or more virtual local area networks (VLANs), the intermediate node  
3 containing a forwarding database having one or more forwarding database entries, a  
4 method for controlling flooding of packets on a VLAN comprising the steps of:  
5 establishing a limit that indicates a number of forwarding database entries that  
6 may are allowed to be associated with the VLAN;  
7 determining if a number of forwarding database entries associated with the VLAN  
8 matches the limit established for the VLAN;

9           if so, shutting down the VLAN;  
10          acquiring a packet associated with the VLAN;  
11          determining if the VLAN is shut down; and  
12          if so, dropping the packet.

1    10. (CURRENTLY AMENDED) The method of claim-1,2, further comprising:  
2          acquiring a packet wherein the packet is associated with the VLAN;  
3          determining if the forwarding database contains an entry which contains a MAC  
4          address that matches a source address contained in the packet;  
5          if not, determining if learning is disabled for the VLAN; and  
6          if not, generating a forwarding database entry that contains the source address of  
7          the packet.

1    11. (CURRENTLY AMENDED) The method of claim-1,2, further comprising:  
2          acquiring a packet associated with the VLAN;  
3          determining if the forwarding database contains an entry which contains a MAC  
4          address that matches a destination address contained in the packet;  
5          if not, determining if flooding is enabled for the VLAN; and  
6          if so, flooding the packet.

1    12. (CANCELLED)

1    13. (CURRENTLY AMENDED) An intermediate node coupled to a data network con-  
2          taining one or more VLANs, the intermediate node comprising:  
3            a forwarding database containing one or more entries wherein each entry is asso-  
4          ciated with a node accessible to the intermediate node and wherein each entry is associ-  
5          ated with a virtual local area network (VLAN);  
6            a media access control (MAC) limit database having one or more MAC limit da-  
7          tabase entries wherein each entry is associated with a VLAN and contains a MAC limit

8 | that indicates a number of forwarding database entries which may be allowed to be as-  
9 | sociated with the VLAN and a MAC count that indicates a number of entries in the for-  
10 | warding database associated with the VLAN; and

11 | a processor configured to, for each VLAN, (i) read a MAC limit associated with  
12 | the VLAN from the MAC limit database, (ii) read a MAC count associated with the  
13 | VLAN from the MAC limit database, (iii) determine if the MAC count associated with  
14 | the VLAN matches the MAC limit associated with the VLAN, and (iv) if so, perform an  
15 | action for controlling the flooding of packets on the VLAN.

1 | 14. (PREVIOUSLY PRESENTED) The intermediate node of claim 13 comprising:  
2 | the processor further configured to, for each entry in the forwarding database,  
3 | compare the MAC count with the MAC limit of the VLAN associated with the forward-  
4 | ing database entry to determine if the MAC count matches the MAC limit.

1 | 15. (PREVIOUSLY PRESENTED) The intermediate node of claim 13 comprising:  
2 | the processor further configured to update the MAC count if the MAC count does  
3 | not match the MAC limit.

1 | 16. (CURRENTLY AMENDED) The intermediate node of claim 1213 further compris-  
2 | ing:

3 | the processor configured to log a message to a log accessible to the intermediate  
4 | node.

1 | 17. (CURRENTLY AMENDED) The intermediate node of claim 1213 further compris-  
2 | ing:

3 | ~~the processor configured to~~ the action for controlling the flooding of packets is to  
4 | disable flooding for the VLAN.

1 18. (CURRENTLY AMENDED) The intermediate node of claim 1213 further comprising:  
2

3 ~~the processor configured the action for controlling the flooding of packets is to~~  
4 disable forwarding packets for the VLAN.

1 19. (CURRENTLY AMENDED) The intermediate node of claim 1213 further comprising:  
2

3 ~~the processor configured the action for controlling the flooding of packets is to~~  
4 disable learning for the VLAN.

1 20. (CANCELLED)

1 21. (CURRENTLY AMENDED) A system comprising:

2 means for referencing a media access control (MAC) limit database comprising  
3 one or more MAC limit database entries wherein each entry is associated with a VLAN  
4 and contains a MAC limit that indicates a number of forwarding database entries which  
5 ~~may are allowed to be~~ associated with the VLAN and a MAC count that indicates a num-  
6 ber of entries in the forwarding database associated with the VLAN;

7 means for using the MAC limit database to determine if a MAC count associated  
8 with the VLAN matches the MAC limit associated with the VLAN; and

9 means for performing an action for controlling the flooding of packets on the  
10 VLAN, if the MAC count associated with the VLAN matches the MAC limit associated  
11 with the VLAN.

1 22. (CURRENTLY AMENDED) A system comprising:

2 means for establishing a limit wherein the limit indicates a number of entries  
3 which ~~may are allowed to be~~ contained in the forwarding database associated with the  
4 VLAN;

5 means for determining if a number of entries in the forwarding database associated  
6 with the VLAN matches the limit established for the VLAN;  
7 means for performing an action for controlling the flooding of packets on the  
8 VLAN, if the number of entries in the forwarding database associated with the VLAN  
9 matches the limit established for the VLAN;  
10 means for accessing an entry in the forwarding database associated with a VLAN;  
11 means for comparing a MAC count with a MAC limit associated with the VLAN  
12 to determine if the MAC count matches the MAC limit; and  
13 means for updating the MAC count, if the MAC count does not match the MAC  
14 limit.

1 23. (CANCELLED)

1 24. (PREVIOUSLY PRESENTED) A method for operating an intermediate network  
2 node, comprising:  
3 receiving a packet having a VLAN tag;  
4 looking up a MAC destination address of the VLAN packet in a forwarding table;  
5 looking up, in response to not finding the MAC destination address in the for-  
6 warding table, a limit of MAC addresses (MAC limit) of the VLAN; and  
7 performing an action for controlling flooding of packets on the VLAN in response  
8 to a count of MAC addresses (MAC count) of the VLAN matching the MAC limit for the  
9 VLAN.

1 25. (PREVIOUSLY PRESENTED) The method of claim 24, further comprising:  
2 logging a message, as the action for controlling flooding on the VLAN.

1 26. (PREVIOUSLY PRESENTED) The method of claim 24, further comprising:  
2 disabling flooding for the VLAN, as the action for controlling flooding on the  
3 VLAN.

- 1 27. (PREVIOUSLY PRESENTED) The method of claim 24, further comprising:  
2       disabling learning for the VLAN, as the action for controlling flooding on the  
3       VLAN.
- 1 28. (PREVIOUSLY PRESENTED) The method of claim 24, further comprising:  
2       shutting down the VLAN, as the action for controlling flooding on the VLAN.
- 1 29. (PREVIOUSLY PRESENTED) The method of claim 24, further comprising:  
2       in response to receiving a VLAN packet for a shut down VLAN, dropping the  
3       packet.
- 1 30. (PREVIOUSLY PRESENTED) The method of claim 24, further comprising:  
2       in response to receiving a VLAN packet, looking up a MAC source address of the  
3       VLAN packet in the forwarding table;  
4       in response to not finding the MAC source address in the forwarding table, deter-  
5       mining if learning is disabled for the VLAN; and  
6       if learning is not disabled for the VLAN, generating a forwarding database entry  
7       for the VLAN.
- 1 31. (PREVIOUSLY PRESENTED) The method of claim 24, further comprising:  
2       in response to not finding the MAC destination in the forwarding table, determin-  
3       ing if flooding is disabled;  
4       if flooding is disabled, dropping the VLAN packet; and  
5       if flooding is not disabled, flooding the VLAN packet out all ports except a re-  
6       ceiving port.
- 1 32. (PREVIOUSLY PRESENTED) The method of claim 24, further comprising:  
2       looking up the MAC limit for the VLAN in a MAC limit database.

- 1 33. (PREVIOUSLY PRESENTED) The method of claim 24, further comprising:
  - 2       looking up the MAC count for the VLAN in a MAC limit database; and
  - 3       in response to the MAC count not matching the MAC limit, updating the MAC
  - 4       count in the MAC limit database.
- 1 34. (PREVIOUSLY PRESENTED) An intermediate network node coupled to a data  
2       network containing one or more VLANs, the intermediate network node comprising:
  - 3       means for receiving a packet having a VLAN tag;
  - 4       means for looking up a MAC destination address of the VLAN packet in a for-  
5       warding table;
  - 6       means for looking up, in response to not finding the MAC destination address in  
7       the forwarding table, a limit of MAC addresses (MAC limit) of the VLAN; and
  - 8       means for performing an action for controlling flooding of packets on the VLAN  
9       in response to a count of MAC addresses (MAC count) of the VLAN matching the MAC  
10       limit for the VLAN.
- 1 35. (PREVIOUSLY PRESENTED) The intermediate network node of claim 34, further  
2       comprising:
  - 3       means for logging a message, as the action for controlling flooding on the VLAN.
- 1 36. (PREVIOUSLY PRESENTED) The intermediate network node of claim 34, further  
2       comprising:
  - 3       means for disabling flooding for the VLAN, as the action for controlling flooding
  - 4       on the VLAN.
- 1 37. (PREVIOUSLY PRESENTED) The intermediate network node of claim 34, further  
2       comprising:
  - 3       means for disabling learning for the VLAN, as the action for controlling flooding
  - 4       on the VLAN.

1 38. (PREVIOUSLY PRESENTED) The intermediate network node of claim 34, further  
2 comprising:

3 means for shutting down the VLAN, as the action for controlling flooding on the  
4 VLAN.

1 39. (PREVIOUSLY PRESENTED) The intermediate network node of claim 34, further  
2 comprising:

3 means for in response to receiving a VLAN packet for a shut down VLAN, drop-  
4 ping the packet.

1 40. (CURRENTLY AMENDED) The intermediate network node of claim 34, further  
2 comprising:

3 in response to receiving a VLAN packet, means for looking up a MAC source ad-  
4 dress of the VLAN packet in the forwarding table in response to receiving a VLAN  
5 packet;

6 in response to not finding the MAC source address in the forwarding table, means  
7 for determining if learning is disabled for the VLAN in response to not finding the MAC  
8 source address in the forwarding table; and

9 if learning is not disabled for the VLAN, means for generating a forwarding data-  
10 base entry for the VLAN if learning is not disabled for the VLAN.

1 41. (CURRENTLY AMENDED) The intermediate network node of claim 34, further  
2 comprising:

3 in response to not finding the MAC destination in the forwarding table, means for  
4 determining if flooding is disabled in response to not finding the MAC destination in the  
5 forwarding table;

6 if flooding is disabled, means for dropping the VLAN packet if flooding is dis-  
7 abled; and

8        if flooding is not disabled, means for flooding the VLAN packet out all ports ex-  
9        cept a receiving port if flooding is not disabled.

1        42. (CURRENTLY AMENDED) The intermediate network node of claim 34, further  
2        comprising:

3        means for looking up the MAC limit for the VLAN in a MAC limit database.

1        43. (CURRENTLY AMENDED) The method-intermediate network node of claim 34,  
2        further comprising:

3        means for looking up the MAC count for the VLAN in a MAC limit database;  
4        and

5        in response to the MAC count not matching the MAC limit, means for updating  
6        the MAC count in the MAC limit database in response to the MAC count not matching  
7        the MAC limit.

1        44. (CURRENTLY AMENDED) An intermediate network node coupled to a data net-  
2        work containing one or more VLANs, the intermediate network node comprising:

3        one or more line cards configured to receive VLAN packets;

4        a forwarding database configured to store one or more MAC destination address  
5        associated with one or more VLANs;

6        a media access control (MAC) limit database configured to store one or more  
7        MAC limit database entries, each MAC limit database entry associated with a VLAN and  
8        containings a limit of MAC addresses (MAC limit) for the VLAN and a count of MAC  
9        addresses of the VLAN; and

10        a processor configured to perform an action for controlling flooding of packets on  
11        a VLAN in response to the MAC count of the VLAN matching the MAC limit for the  
12        VLAN.

1 45. (PREVIOUSLY PRESENTED) The intermediate network node of claim 44, further  
2 comprising:

3 the processor configured to log a message, as the action for controlling flooding  
4 on the VLAN.

1 46. (PREVIOUSLY PRESENTED) The intermediate network node of claim 44, further  
2 comprising:

3 the processor configured to disable flooding for the VLAN, as the action for con-  
4 trolling flooding on the VLAN.

1 47. (PREVIOUSLY PRESENTED) The intermediate network node of claim 44, further  
2 comprising:

3 the processor configured to disable learning for the VLAN, as the action for con-  
4 trolling flooding on the VLAN.

1 48. (PREVIOUSLY PRESENTED) The intermediate network node of claim 44, further  
2 comprising:

3 the processor configured to shut down the VLAN, as the action for controlling  
4 flooding on the VLAN.

1 49. (PREVIOUSLY PRESENTED) The intermediate network node of claim 44, further  
2 comprising:

3 the processor configured to drop a VLAN packet, in response to receiving the  
4 VLAN packet for a shutdown VLAN.

1 50. (PREVIOUSLY PRESENTED) The intermediate network node of claim 44, further  
2 comprising:

3 the processor configured to look up a MAC source address of a VLAN packet in  
4 the forwarding table;

5 the processor configured to determine if learning is disabled for the VLAN, in re-  
6 sponse to not finding the MAC source address of the VLAN in the forwarding table; and  
7 the processor configured to generate a forwarding database entry for the VLAN, if  
8 learning is not disabled for the VLAN.

1 51. (PREVIOUSLY PRESENTED) The intermediate network node of claim 44, further  
2 comprising:

3 the processor configured to determine if flooding is disabled for a VLAN, in re-  
4 sponse to not finding a MAC destination for a VLAN packet in the forwarding table;  
5 the processor configured to drop the VLAN packet, if flooding is disabled; and  
6 the process configured to flood the VLAN packet out all ports except a receiving  
7 port, if flooding is not disabled.

1 52. (PREVIOUSLY PRESENTED) The intermediate network node of claim 44, further  
2 comprising:

3 the processor configured to look up a MAC limit for a VLAN in the MAC limit  
4 database.

1 53. (PREVIOUSLY PRESENTED) The method of claim 44, further comprising:

2 the processor configured to look up a MAC count for a VLAN in the MAC limit  
3 database; and

4 the processor configured to update the MAC count in the MAC limit database, in  
5 response to the MAC count not matching the MAC limit.

1 54. (CURRENTLY AMENDED) A computer readable media, comprising:

2 the computer readable media containing instructions for operating an intermediate  
3 network node for the practice of the method of,  
4 receiving a packet having a VLAN tag;  
5 looking up a MAC destination address of the VLAN packet in a forwarding table;

6 looking up, in response to not finding the MAC destination address in the for-  
7 warding table, a limit of MAC addresses (MAC limit) of the VLAN; and  
8 performing an action for controlling flooding of packets on the VLAN in response  
9 to a count of MAC addresses (MAC count) of the VLAN matching the MAC limit for the  
10 VLAN.